

I claim:

1. A reflective type light valve projection device comprising:
 - an incident light source for providing an incident light;
 - a first dichroic beam splitter/combiner located on the optical path of said incident light for reflecting a first primary color to separate said first primary color from a second and a third primary colors;
 - a second dichroic beam splitter/combiner located on the optical path of said incident light for separating the second and third primary colors passing through said first dichroic beam splitter/combiner;
 - three light valves including a first light valve, a second light valve and a third light valve and used as image modulating devices, said three light valves respectively modulating and reflecting the three primary colors separated by said first and second dichroic beam splitters/combiners to let said first and second dichroic beam splitters/combiners collect the modulated and reflected first and second primary colors; and
 - a projecting lens for collecting the three primary colors reflected and transmitted by said first and second dichroic beam splitters/combiners after modulation to project out a full-color image.
2. The reflective type light valve projection device as claimed in claim 1, wherein said first light valve and said third light valve are symmetrically arranged with said first dichroic beam splitter/combiner as the reference plane, and said third light valve and said second light valve are symmetrically arranged with said second dichroic beam splitter/combiner as the reference plane.
3. The reflective type light valve projection device as claimed in claim 1,

wherein said first and second dichroic beam splitters/combiners can be crosswise arranged.

4. The reflective type light valve projection device as claimed in claim 3, wherein said first, second and third light valves are so arranged that the optical path of said modulated and reflected third primary color, the optical path of said second primary color reflected by said second dichroic beam splitter/combiner after modulation, and the optical path of said first primary color reflected by said first dichroic beam splitter/combiner after modulation overlap mutually.
5. The reflective type light valve projection device as claimed in claim 1, wherein said first light valve, said second light valve and said third light valve are a red liquid crystal panel, a green liquid crystal panel and a blue liquid crystal panel, respectively.
6. The reflective type light valve projection device as claimed in claim 1, wherein said first, second and third light valves are digital light processors.
7. The reflective type light valve projection device as claimed in claim 1, wherein a polarization conversion device is further disposed outside said incident light source, and said incident light first passes through said polarization conversion device before entering said first and second dichroic beam splitters/combiners.
8. The reflective type light valve projection device as claimed in claim 1, wherein a polarization selection component is further disposed outside said incident light source, and said incident light first passes through said polarization selection component before entering said first and second beam splitters/combiners.

9. The reflective type light valve projection device as claimed in claim 5,
wherein a polarization selection component is further disposed outside said
incident light source, and said incident light first passes through said
polarization selection component before entering said first and second beam
splitters/combiners.
10. The reflective type light valve projection device as claimed in claim 1,
wherein a polarization selection component can further be disposed in front
of said projection lens after said light leaving said first and second dichroic
beam splitters/combiners.
11. The reflective type light valve projection device as claimed in claim 5,
wherein a polarization selection component can further be disposed in front
of said projection lens after said light leaving said first and second dichroic
beam splitters/combiners.
12. The reflective type light valve projection device as claimed in claim 1,
wherein a reflecting mirror can further be provided outside said light source
to change the projection direction of light.
13. The reflective type light valve projection device as claimed in claim 5,
wherein a reflecting mirror can further be provided outside said light source
to change the projection direction of light.
14. The reflective type light valve projection device as claimed in claim 6,
wherein a reflecting mirror can further be provided outside said light source
to change the projection direction of light.
15. The reflective type light valve projection device as claimed in claim 1,
wherein the beam splitting and combining regions of said two dichroic
beam splitters/combiners do not overlap each other.

16. The reflective type light valve projection device as claimed in claim 1,
wherein the beam splitting and combining regions of said two dichroic
beam splitters/combiners are on the same mirror formed by different film
coating condition.
- 5 17. The reflective type light valve projection device as claimed in claim 1,
wherein the beam splitting and combining regions of said two dichroic
beam splitters/combiners are on different mirrors glued together.
18. The reflective type light valve projection device as claimed in claim 1,
wherein the beam splitting and combining regions of said two dichroic
10 beam splitters/combiners are on different mirrors assembled together.
19. The reflective type light valve projection device as claimed in claim 1,
wherein an infrared filter can further be provided before said light entering
said first and second dichroic beam splitters/combiners to separate infrared
light from said three primary colors, thereby preventing infrared light from
15 entering said first and second dichroic beam splitters/combiners and said
light valves.
20. The reflective type light valve projection device as claimed in claim 1,
wherein an ultraviolet filter can further be provided before said light
entering said first and second dichroic beam splitters/combiners to separate
20 ultraviolet light from said three primary colors, thereby preventing
ultraviolet light from entering said first and second dichroic beam
splitters/combiners and said light valves.
21. The reflective type light valve projection device as claimed in claim 19,
wherein said infrared filter and said ultraviolet filter can be on the same
25 mirror or different mirrors.

22. The reflective type light valve projection device as claimed in claim 20,
wherein said infrared filter and said ultraviolet filter can be on the same
mirror or different mirrors.